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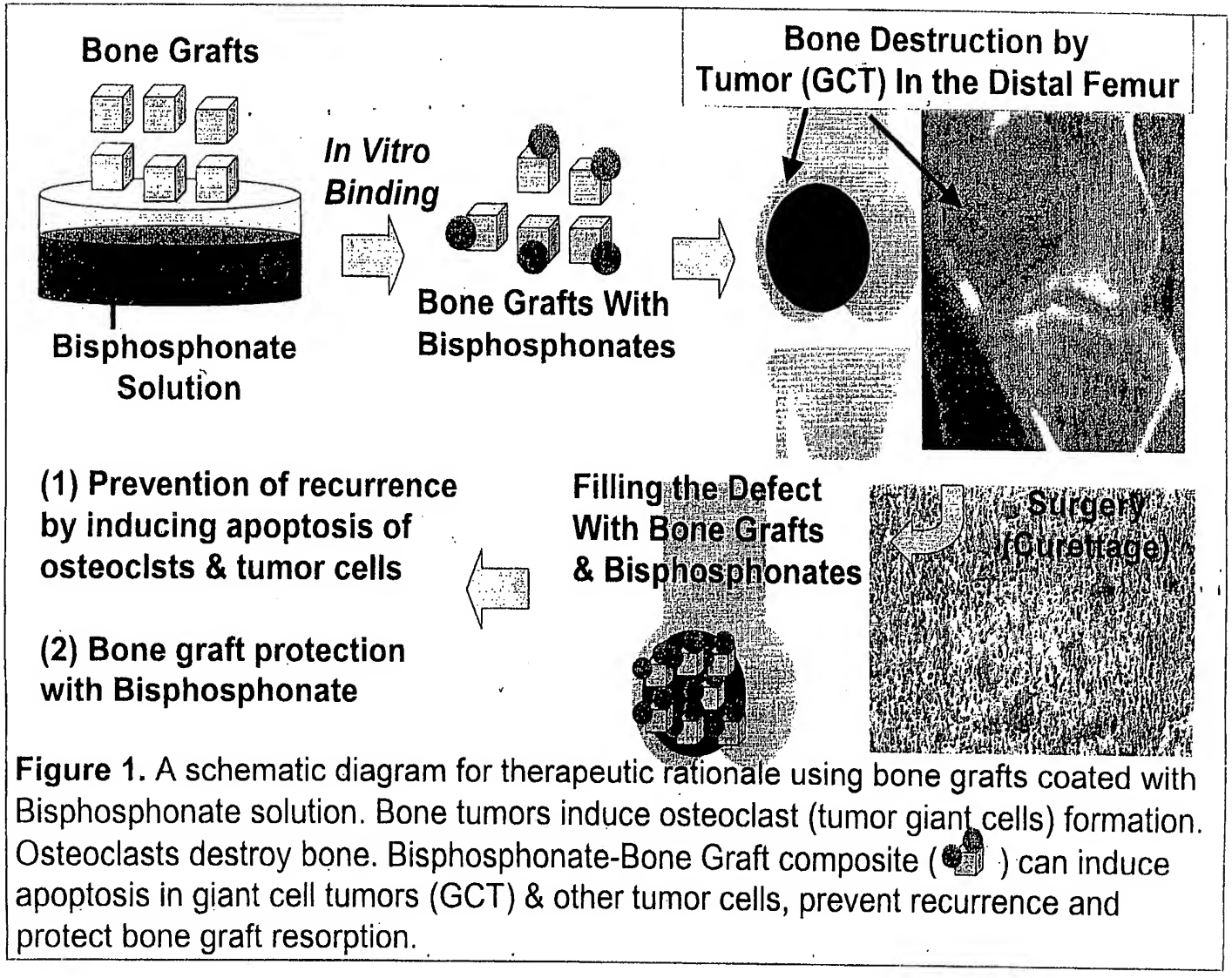

Figure 1. A schematic diagram for therapeutic rationale using bone grafts coated with Bisphosphonate solution. Bone tumors induce osteoclast (tumor giant cells) formation. Osteoclasts destroy bone. Bisphosphonate-Bone Graft composite ( ) can induce apoptosis in giant cell tumors (GCT) & other tumor cells, prevent recurrence and protect bone graft resorption.

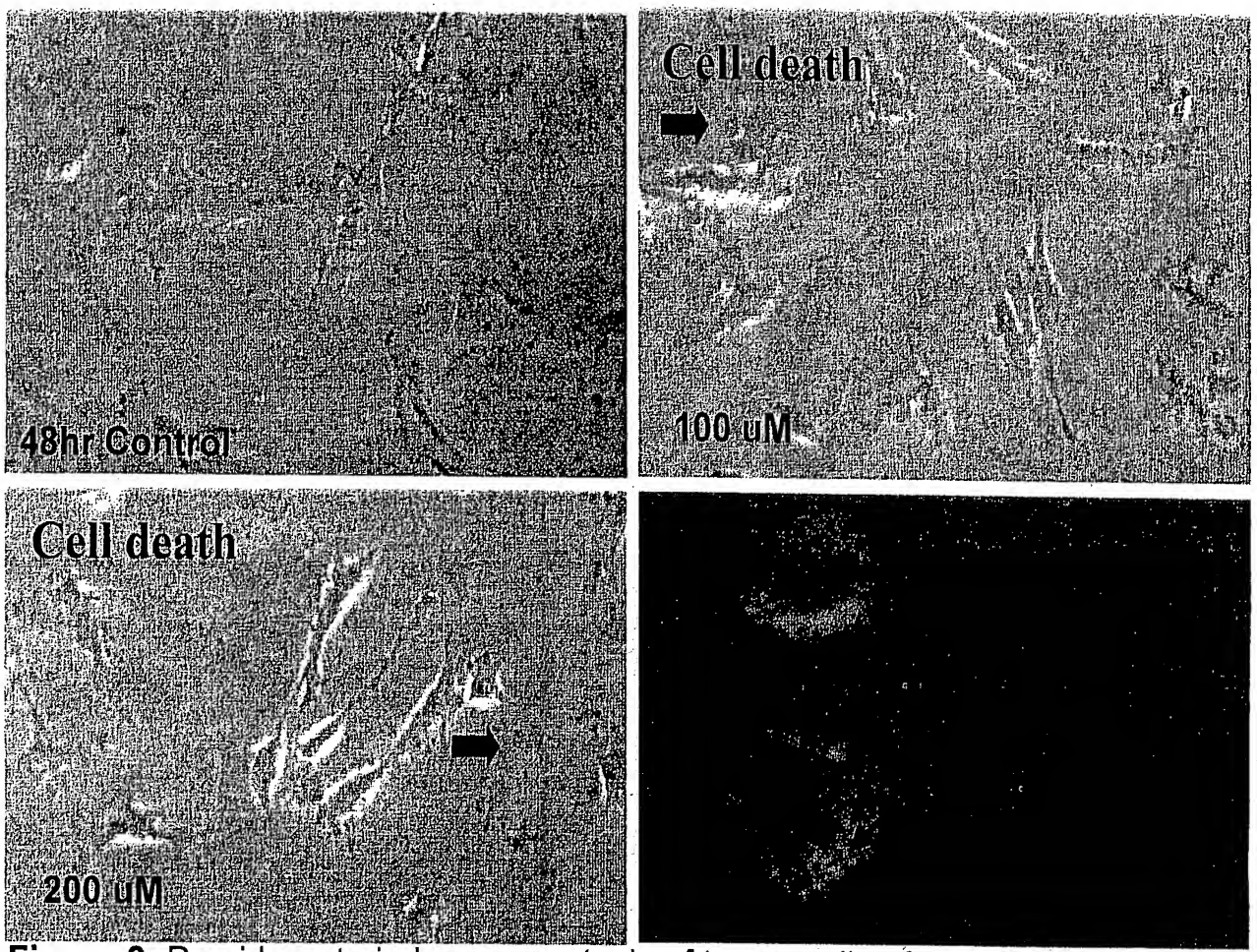

Figure 2. Pamidronate induces apoptosis of tumor cells of giant cells in a dose dependent manner. The control picture shows plumpy, polyhedral cytoplasm. Addition of 100 & 200 uM of Pamidronate induces cell death. Annexin V staining indicates apoptosis of tumor cells.

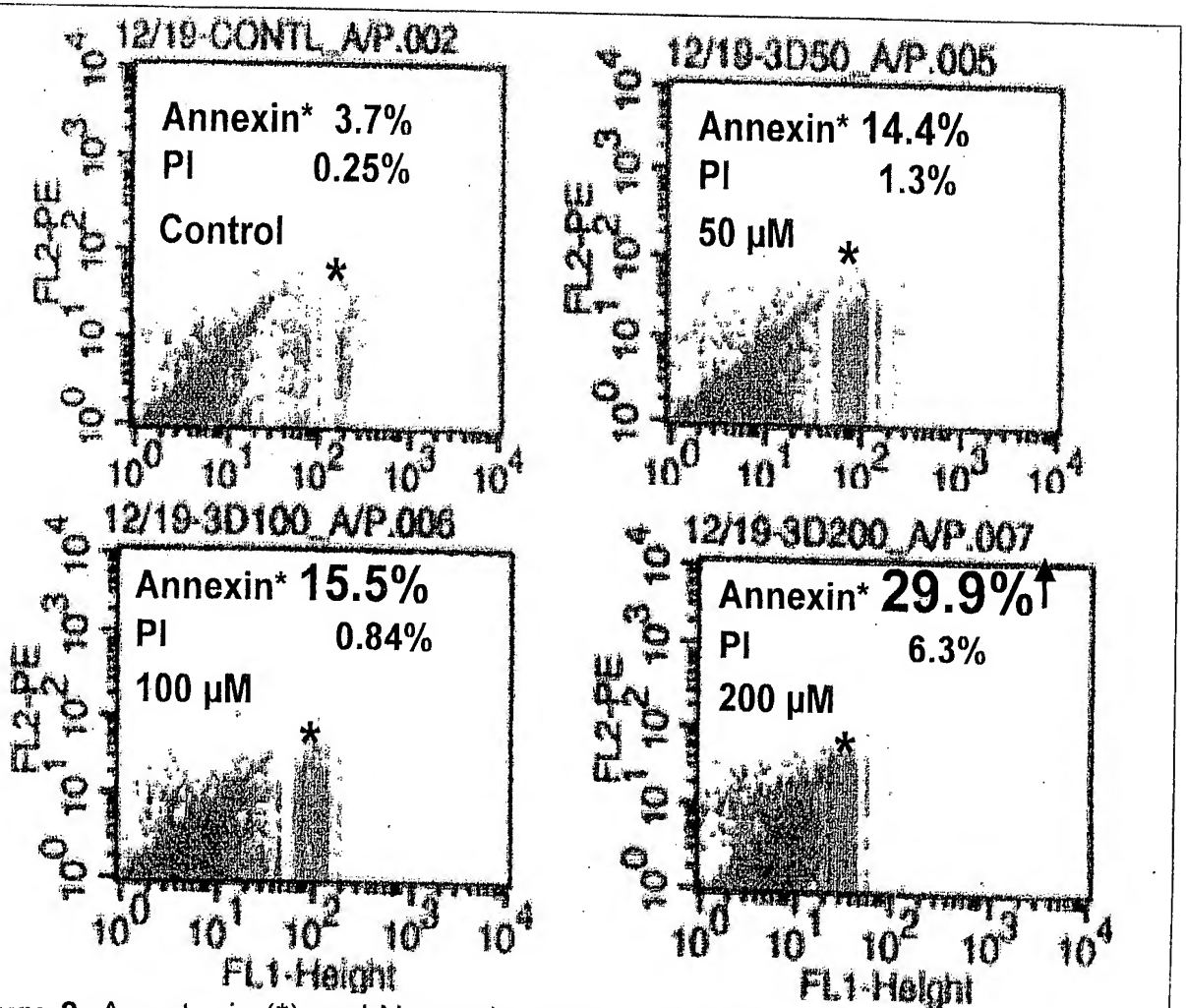

Figure 3. Apoptosis (*) and Necrosis assay using Annexin V and Propium Iodide. The apoptotic population increases with a higher dose of Pamidronate.

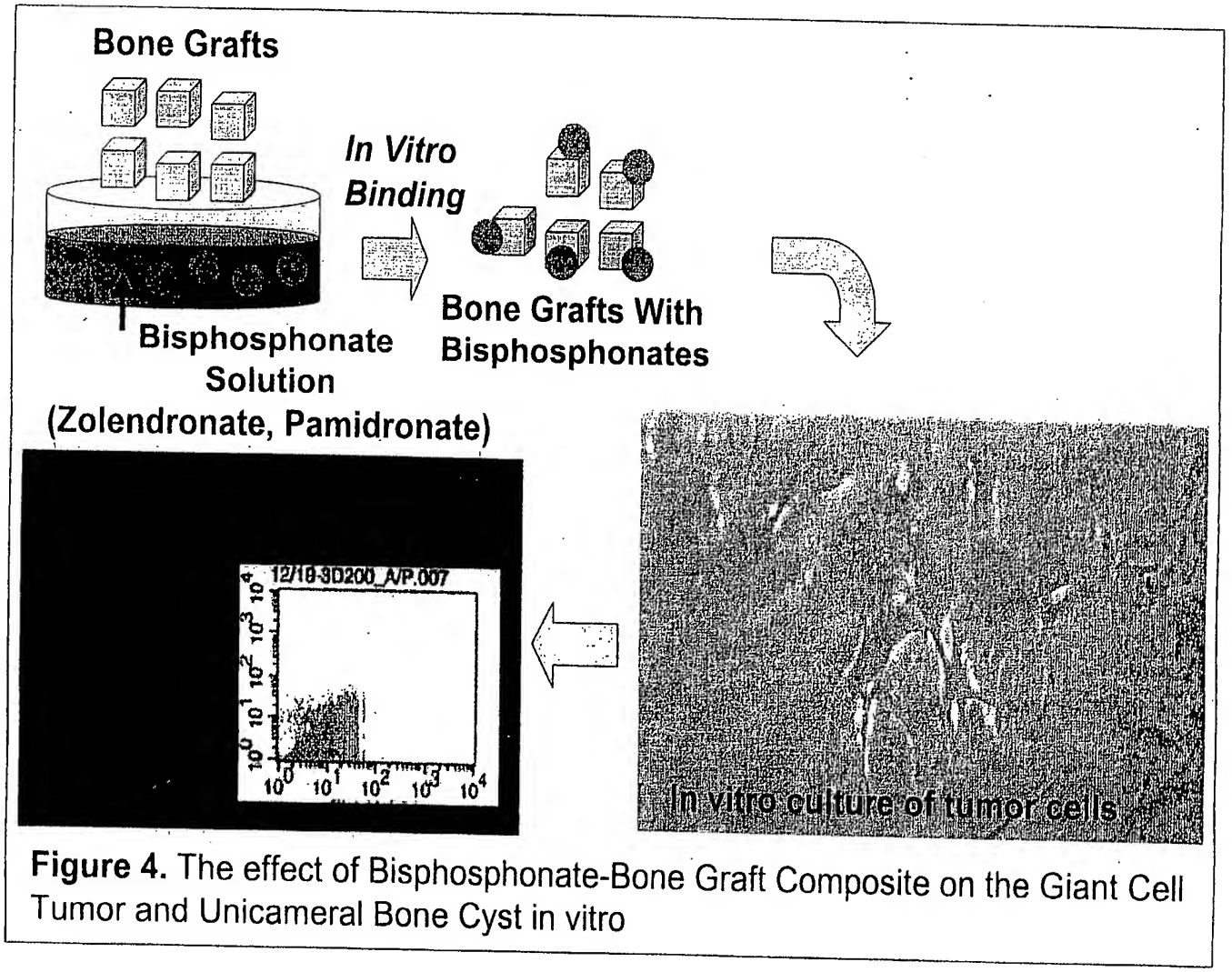

Figure 4. The effect of Bisphosphonate-Bone Graft Composite on the Giant Cell Tumor and Unicameral Bone Cyst in vitro